



Base Hospital Contact Required. ①

1. For patients meeting [Ref. 814](#) Section I criteria for determination of death in the field – document *DOA – Obvious Death*
2. Assess airway and initiate basic airway maneuvers ([MCG 1302](#))
3. Assist respirations with bag-mask-ventilations (BMV) using **high-flow Oxygen 15L/min**. Squeeze bag just until chest rise and then release; state “Squeeze, release, release” to avoid hyperventilation ②
4. For suspected foreign body (no chest rise with BMV): ③
Perform direct laryngoscopy and use pediatric Magill forceps to remove visible obstruction(s)
5. Initiate chest compressions at a rate of 100-120 compressions per minute with a compression to ventilation rate of 15:2 ④ ⑤
6. Initiate cardiac monitoring ([MCG 1308](#))
Briefly assess rhythm every 2 minutes, minimizing pauses, or continuously via rhythm display technology ⑥ ⑦
7. Establish vascular access ([MCG 1375](#)) ⑧
8. **CONTACT BASE** concurrent with ongoing management

ASYSTOLE/PEA

9. **Epinephrine (0.1mg/mL) 0.01mg/kg IV/IO**, dose per [MCG 1309](#)
May repeat every 5 min x2, maximum single dose 1mg; and maximum total dose 3mg ⑨

CONTACT BASE for additional epinephrine doses

10. Consider and treat potential causes ⑩
11. **Normal Saline 20mL/kg IV/IO** per [MCG 1309](#)
May repeat x2

V-FIB/PULSELESS V-TACH

12. **Defibrillate at 2J/kg**, dose per [MCG 1309](#)
Repeat at **4J/kg** at each 2-minute cycle as indicated
13. **Epinephrine (0.1mg/mL) 0.01mg/kg IV/IO**, dose per [MCG 1309](#)
Begin after second defibrillation ⑨
May repeat every 5 min x2, maximum single dose 1mg; and maximum total dose 3mg

CONTACT BASE for additional epinephrine doses



Treatment Protocol: CARDIAC ARREST

Ref. No. 1210-P

14. For persistent or recurrent V-Fib/V-Tach without pulses:
Amiodarone (50mg/mL) 5 mg/kg IV/IO, dose per [MCG 1309](#)

RETURN OF SPONTANEOUS CIRCULATION ^{11 12}

15. Establish advanced airway prn ¹³
16. Raise head of stretcher to 30 degrees if blood pressure allows, otherwise maintain supine
17. Continue ventilation at 10-20 breaths per minute ¹³
18. For SBP < 70mmHg:
Normal Saline 20mL/kg IV/IO rapid infusion per [MCG 1309](#)
Repeat x1 for persistent poor perfusion

If no response after **Normal Saline 20mL/kg**, or worsening hypotension and/or bradycardia:
Push-dose Epinephrine – mix 9mL Normal Saline with 1mL Epinephrine (0.1mg/mL) IV formulation in a 10mL syringe; administer **Push-dose Epinephrine (0.01mg/mL)** per [MCG 1309](#) every 1-5 minutes as needed to maintain SBP > 70mmHg ¹⁴

19. Check blood glucose ¹⁵
For blood glucose < 60mg/dL
Dextrose 10% 5mL/kg IV/IO per [MCG 1309](#)
20. For suspected narcotic overdose: ¹⁶
Naloxone (1mg/mL) 0.1mg/kg IM/IN/IO/IV, dose per [MCG 1309](#)



SPECIAL CONSIDERATIONS

- ① EMS Personnel are mandated reporters of child abuse and neglect, and a report should be made when suspected as per [Ref. 822](#). Communicate suspicion for child abuse and/or neglect to accepting ED staff when home suggests children could be at risk for harm (e.g., unkept home, evidence of drug or alcohol abuse, unsafe living conditions, known or suspected domestic violence), when the history does not match with the severity of physical findings (e.g., child posturing after a roll off the couch), when patterned injury or burns are noted (e.g., circular burns as from a cigarette, whip marks on the skin, burns of both hands or feet), or when child reports physical or sexual abuse. Children < 3 years of age and those with developmental delay are at increased risk of abuse. This must also be accompanied by notification to the Department of Children and Family Services (DCFS).
- ② Bag-mask ventilation (BMV) is the preferred method of airway management during cardiac arrest resuscitation and has been associated with improved patient outcomes. Advanced airway placement should be deferred until after return of spontaneous circulation (ROSC).
- ③ Children < 3 years of age are at high risk for foreign body aspiration. Foreign body aspiration should be suspected if there is a history of possible aspiration or when there is no chest rise with BMV after repositioning of the airway.
- ④ Maintaining perfusion with continuous high-quality CPR throughout resuscitation is essential to ensuring good patient outcome. Chest compressions are the most important aspect of cardiac arrest resuscitation. Maintaining continuous chest compressions should take priority over any medication administration or transport.
- ⑤ Hyperventilation reduces venous return and worsens patient outcomes. Both continuous and interrupted (15:2) compressions/ventilations are acceptable. Regardless of ventilation method used, ventilations should be no more frequent than 10 per minute with a volume just enough to see chest rise.
- ⑥ If you are able to observe the underlying rhythm during compressions via rhythm display technology, do not pause for the rhythm check.
- ⑦ ETCO₂ should be > 10 with a “box-shaped” waveform during effective CPR. A flat or wavy waveform or ETCO₂ < 10 may indicate ineffective compressions or airway obstruction. A sudden increase in ETCO₂ is suggestive of ROSC. The waveform can also be used to confirm ventilation rate if an advanced airway or asynchronous ventilation with continuous compressions is used.
- ⑧ Peripheral venous access may be difficult to obtain in infants and small children. Consider IO placement as primary vascular access in patients for whom venous access is unlikely to be achieved rapidly. For older children, make two attempts at venous access and, if unsuccessful, place an IO for vascular access.
- ⑨ Epinephrine may improve outcomes if given early in non-shockable rhythms, but can worsen outcomes early in shockable rhythms, where defibrillation is the preferred initial treatment. Epinephrine is most likely to be effective if it is given early and after chest compressions have begun. The likelihood of meaningful survival declines after three (3) doses of epinephrine. Resuscitation should continue focused on quality CPR, defibrillation, and identifying reversible causes. Additional



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doses of epinephrine should only be administered with Base order.

- ⑩ Potential causes that can be treated in the field include hypoxia, hypovolemia, hyperkalemia, hypothermia, toxins, and tension pneumothorax. Hypoxia and Hypovolemia are common causes of PEA arrest in children. Hypoglycemia is a very rare cause of cardiac arrest and should not be assessed until after ROSC.
- ⑪ Post cardiac arrest patients are at high risk for re-arrest during transport. Fluid resuscitation, vasopressor support, and avoidance of hyperventilation are recommended to decrease the risk of re-arrest.
- ⑫ ETCO₂ can help guide your ventilation rate; target ETCO₂ 35-40 mmHg. Just after ROSC, the ETCO₂ may be transiently elevated. This will decrease appropriately with ventilation and does not require hyperventilation to normalize. Persistently elevated ETCO₂ and/or “sharkfin” waveform may indicate respiratory failure as cause of the cardiac arrest. Falsely low ETCO₂ measurements can occur if there is a leak with BMV or shock.
- ⑬ In the ROSC patient, BMV is preferred method for ventilation; in a patient longer than the Broselow tape or > 40 kg body weight ETT is strongly preferred to King LT placement.
- ⑭ **Push-dose Epinephrine** is appropriate for non-traumatic shock including cardiogenic shock. Additional doses beyond 10mL may need to be prepared for prolonged transports. For patients < 10kg, transfer the diluted **Push-dose Epinephrine** to a smaller (1mL or 3mL) syringe in order to administer the dose accurately.
- ⑮ In pediatric patients post-arrest hypoglycemia should be treated with Dextrose 10% half-the dose delivered (2.5 mL/kg) and then blood glucose rechecked, and if measured glucose > 60 mg/dL no additional dextrose should be delivered.

If the rechecked blood glucose is < 60 mg/dL then administer an additional Dextrose 10% 2.5 mL/kg IV/IO; Hyperglycemia > 180 mg/dL should be avoided to optimize outcome.
- ⑯ Narcotic overdose should be suspected in cases where there is drug paraphernalia on scene or there is a witness report. Pinpoint pupils may be present, but hypoxia during cardiac arrest more often causes mydriasis (dilated pupils) instead.